

Independent vs. Dependent Events:

I. A stack of cards contains the nine cards shown to the right.

2	3	5
9	6	3
9	1	8

- a. If Ellie randomly picks on card from the stack, what is the probability that the card is an even number?
- b. If Ellie replaces the card, then mixes them up and picks a card, what is the probability that the card is an even number?
- c. If Ellie picks an even number from the stack, keeps it, then picks another card, what is the probability that the second card is even?
- d. What is the difference between replacing the first card, and not replacing the first card?

- e. Think about the words “independent” and “dependent”. What do those words mean to you?

- f. When Ellie picked two cards, and replaced the first card, was that an independent or a dependent event? Explain

- g. When Ellie picked two cards, and did not replace the first card, was that an independent or a dependent event? Explain

Independent Events: _____

Dependent Events: _____

II. Mrs. Little has 8 boys, and 10 girls in her class. She picks a student each morning to take her attendance.

- What is the probability that she picks a girl? _____
- What is the probability that she picks a boy? _____
- Mrs. Little has each students' name on a popsicle stick. What is the probability that she picks a girl on Monday, puts the stick back, and picks a girl on Tuesday?
- What is the probability that she picks a girl on Monday, does not replace the stick, and picks a girl again on Tuesday?
- What is the probability that she picks a boy two days in a row, if the popsicle stick is replaced?
- What is the probability that she picks a boy two days in a row if the popsicle stick is NOT replaced?
- Explain which of the events in the situation above are independent, and how you know.
- Explain which events in the above situation are dependent, and how you know.



III. Lilly is playing a game with a stack of cards. In order to win the game, she must pull two of the same type of cards in a row. If Lilly wants to have the best chances of winning, should she replace the first card she picks, or should she keep it? Explain.

IV. In a cage at the San Diego zoo, there are 3 black cats, 4 white cats, and 2 brown cats. If 2 cats escape from the cage, what is the probability that both cats are black?

V. Lucas has a bag of 7 blue skittles, 9 purple skittles, 5 yellow skittles, and 4 green skittles. If Lucas randomly selects one skittle, eats it, then randomly selects a second skittle, what is the probability that the first skittle was yellow, and the second was green?

Classify each compound event as Independent or Dependent, and then find the probability.

1.) Michael flips a coin and rolls a dice. Find the probability that he flips “heads” and rolls a “6”.

☐ Independent

☐ Dependent

2.) Alex has a bag of marbles. 5 are green, 3 are blue, and 2 are red. What is the probability that Alex pulls a green marble, puts it in his pocket, and then pulls another green marble?

☐ Independent

☐ Dependent

3.) Lauren accidentally drops a coin onto a staircase with 5 stairs. What is the probability that the coin lands on the second stair tails up?

☐ Independent

☐ Dependent

4.) A box of socks contains 5 white socks, 3 grey socks, 4 black socks and 1 blue sock. If Sophie closes her eyes and randomly picks two socks from the box, what is the probability that both socks are grey?

☐ Independent

☐ Dependent

5.) A bowl of fruit is on the kitchen table. It contains 5 apples, 2 oranges, and 2 bananas. Christian and Aaron come home from school and randomly grab one fruit each. What is the probability that both grab oranges?

☐ Independent

☐ Dependent

6.) There are 27 students available to represent the upperclassmen at a school fair. 13 are Juniors and 14 are Seniors. What is the probability that the first student chosen is a Senior, and the second student chosen is a Junior?

☐ Independent

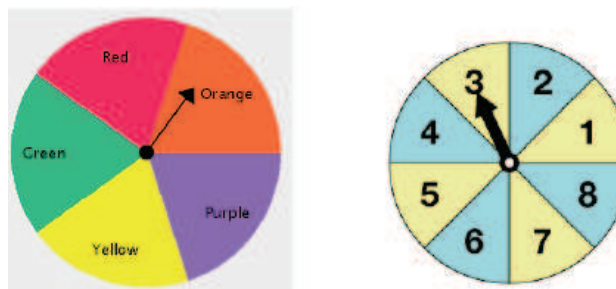
☐ Dependent

7.) If the probability that Caleb makes a free-throw is 60%, what is the probability that Caleb makes two free-throws in a row?

☐ Independent

☐ Dependent

8.) If the two spinners are spun at the same time, what is the probability that the first spinner will land on red, and the second spinner will land on 1?



10.) A baseball player makes a hit 3 out of every 4 at bats. What is the probability that they get two hits in a row?

11.) A basketball player recorded the number of shots they missed and made in the table below. What is the probability that they will make the next two shots in a row?

Missed	Made
6	9

12.) 30 tickets are sold for a raffle with two prizes. You bought two tickets. What is the probability that you will win both prizes?

13.) There are 16 boys, and 14 girls in Mr. Smith's homeroom. If two students are absent, what is the probability that both absent students are boys?

14.) A number cube is rolled 3 times. What is the probability that a number greater than 4 is rolled all three times?

15.) A jar contains 6 blue, 4 red, and 2 green marbles. What is the probability that three blue marbles are drawn with out replacement?